The Herald-Telephone
Wednesday, June 4, 1980
Page 37

IU news in brief

Ruh honored for article

IU News Bureau

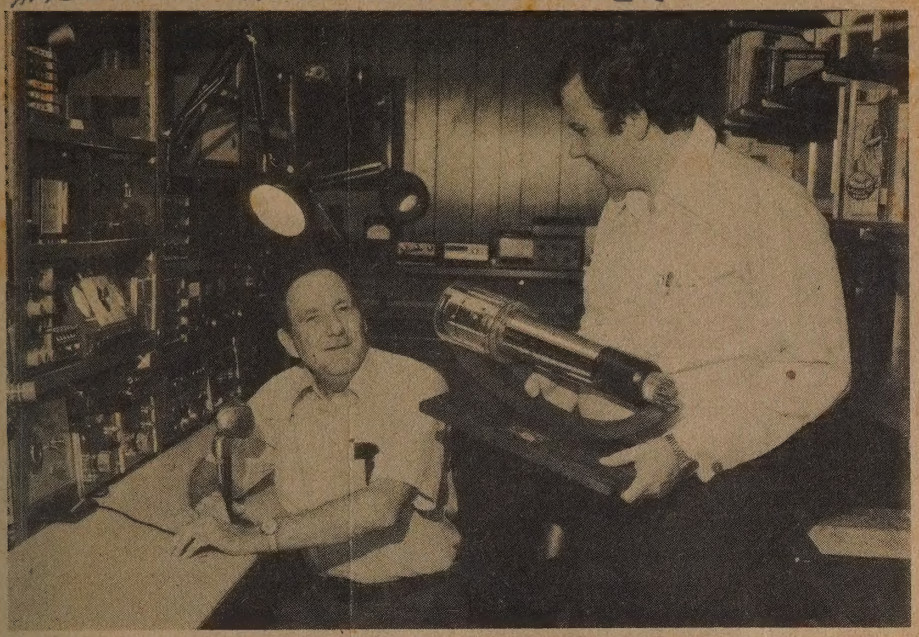
Henry Ruh, assistant chief engineer for Indiana University's Radio-Television Service, was recently honored for his "best article" by *QST Magazine*, an international publication for ham radio operators, with a circulation of 200,000.

The article Ruh wrote was a do-it-yourself one on building a television sound and picture transmitter/receiver.

The article also has been selected for reprinting in the Ameteur Radio Relay League's annual publication, *Radio Amateurs Handbook*.

tella Baug
WEDNESDAY, JUNE 4, 1980

11-7-90
FLAGSHIP NEWS
AMERICAN AIRLINES NEWS PAPER



Warren J. Weldon, Tulsa supervisor of the quality control laboratory, sits in his amateur television station as Henry B. Ruh, editor of A5 magazine, presents an award shaped like a television camera tube.

For Warren J. Weldon, Tulsa supervisor of the quality control laboratory, honors have been coming faster than television signals atop his home on Reservoir Hill north of Tulsa. They came from the White House, from A5 (an international television magazine) and from the American Radio Relay League. Each of these acknowledged Mr. Weldon's unique contribution through his amateur television station, W5DFU.

Hard put to select the award to explain first, Mr. Weldon usually reaches for the prized letter from the White House which reads:

"Through the courtesy of your friend Henry Ruh, the President has learned of your voluntary assistance to the National Weather Service. The President is happy to learn of the good works which Americans perform for their fellow citizens and your initiative in setting up your supplementary weather station. With the President's warm good wishes."

The letter is signed by Landon Rite, [illegible] assistant.

The A5 award was in the form of a television camera tube (an im[illegible] orthicon or "good image" tube) that is given annually to the individual or group making the greatest contribution to amateur television.

"In recognition of outstanding achievements in serving the public interest of the community" is the wording on the National Certificate of Merit that he got from the American Radio Relay League's public information office.

These recent recognitions are [illegible] the latest of a long list of [illegible] to Mr. Weldon for his 44-

Congratulations

THIRTY YEARS

Burgin, Melvin L.—Mechanic, overhaul, TULE, 11-7
Courtney, Walter F.—Supervisor, ramp services, LAX, 11-26
Dale, Robert W.—Mechanic, overhaul, TULE, 11-3
McCoy, Gerald L.—Planner, production control, TULE, 11-12
Newton, Chester A. Jr.—Planner, production control, TULE, 11-10
Owen, Terrell T.—Flight engineer check airman, GSW, 11-20
Painter, Donny—Crew chief/stock clerk, TULE, 11-3
Spangler, Roger M.—Pilot instructor, simulator, GSW, 11-24
Stagner, Quillibert P.—Mechanic, overhaul, TULE, 11-3
Stephens, Bob—Crew chief/stock clerk, TULE, 11-3

TWENTY-FIVE YEARS

Aguirre, Rosendo—Mechanic, overhaul, TULE, 11-12
Barker, Roland J.—Mechanic, overhaul, TULE, 11-11
Bonner, Larry G.—Labor relations representative, TULE, 11-3
Bozeman, Dorothy T.—Stock clerk, TULE, 11-10
Clinton, Leonard M. Jr.—Inspector, overhaul, TULE, 11-1
Cooley, William J.—Fleet service clerk, LAX, 11-20
Durnal, J. C.—Mechanic, overhaul, TULE, 11-14
Gillham, Dean L.—Mechanic, overhaul, TULE, 11-6
Griffin, Charles E.—Inspector, overhaul, TULE, 11-13
Hanslik, Arthur J.—Specialist, cargo/catering/avionics equipment repair, TULE, 11-15
Higeons, Jim—Mechanic, overhaul, TULE, 11-24
Hughes, Wilbur L.—Mechanic, overhaul, TULE, 11-11
Jackson, Hyman M.—General purchasing agent, GSW, 11-18
McCullough, Juanita E.—Secretary, LAX, 11-7

LaRossa, John—Utility man,
(18 years)
McCracken, William A.—Pilo
Tryba, Thaddeus T.—Crew c
(29 years)
Williams, John D.—Shift sup
production, LGA, 12-1 (4
Wollar, John P.—Pilot, ORD,

Walkin

MAR

BDR—**MaryBeth Barna** and
LAX—**Judith Ruby** and Gary
LGA—**Linda Radford** and Don
and Robert Mac Vicar, Oc
McSweeny, Oct. 22; Shar
Oct. 15; **Linda Knous** and
SAN—**Kristy A. Bradford** and

B

GSW—Tom and Nancy Smith
HNL—Keith and Terri Hamb
LAX—Roscoe and Mildred C
NYC—Fred and Kathleen Kn
ORD—Paul and Kathleen Mc

Clas

FO

...ore lamps, clothes, and other...
..., (212) 631-4519
...s, 100% nylon gold custom made, 2 square
oval 36x60, sculptured, with fringe, $40,
54 or 65
R—Revere 8mm, all steel body, $25.00,
54 or 65
can Phyfe mahogany table, 1 leaf, pads,
ffet & server w/glass tops, 6 chairs, $650,

es, sculptured, 12 x 19½, shag, inc rubber
282-0353
auburn, full horiz pelts, size 5 for some-
er, $300, NYC X4726 or (212) 595-2427.
r model, 27", work perfect, $35, NYC
595-2427
chest of drawers, 18" x 30", 3 lrg drs,
es, NYC X4726 or (212) 595-2427
s, NY, 4 bdrm, fin bsmnt, ctrl air, above
deck, carpeting, walk everything, $43,000,

FOR RENT

hurst, NY, 3 rms, $165 mo, (212) 426-6262

ge, Calif, ¼ mi from ski slope & golf course,
8, tv, frplc, $30 night, $150 wk, (213)

Conn, older Colonial w/frplc, dr, 3 bdrm,
cellar, 2 car gar, frnt & back yards, walk to
) 853-3995
eps 8, 22 ft, $225 7 days, $35 day (3 day
no mil charge, bedding & dishes arranged,
from LAX, (714) 551-1729
NIUM—Park City, Utah, 1 br, slps 4, comp
fts, reas rates, (203) 376-9575
scondido, Calif., 1 br + hide-a-bed, semi-
tennis, jacuzzi, sauna, 20 min beach, 15%
wk, $500 mo, (213) 596-3165

WANTED

n Nassau, NY area, 3-4 rms, for newly-
can move nov thru feb, (516) 872-

NEL—For reunion on Feb 18 at Long Beach,
ary who served at Marana from 1951-57
dall, 8091 Holt St, Buena Park, Calif. 90621,

For Save the Children Federation, send to
son, 123 Yale Blvd, S.E., Box 4010, Albu-
87106 or Lloyd C. Owle, Eastern Cherokee
2, Cherokee, N.C. 28719

SERVICES

lobby of GO, for men & women, $12 cut
C X4863
S—For all denominations, NYC X7859
estchester Sq Auto Body Shop, 1320 Coop-
0% discount to AAers, (212) 863-8307
—For people with Muscular Dystrophy, to
pe, contact Ed Lopez, ORD X4088 or (3
me

Reader's Forum

Got something to say about *Radio World?* Any comments on articles? Get it off your chest! Call us at 800-336-3045 or send a letter to Reader's Forum (*Radio World*, Box 1238, Arlington VA 22210) for a reply.

Label Problems

Dear RW:

I am writing to both complain and congratulate. I have been receiving *Radio World* for quite some time and have found the articles to be interesting and quite often very informative. Sometimes I wished for a little more depth in dealing with some technical problems which are being discussed, but overall I have no complaints on contents.

I do have a complaint. As the attached copy shows, I am not able to read all of your front page articles. Is there some way to move the address label to another location? I realize that covering the masthead is not necessarily a good advertising idea but it would greatly improve article readability. This is not the first paper to come in this way. I just chose this one to complain about.

Steve Douglas/CE
KOTI-TV/Klamath Falls OR

Dear RW:

As an avid reader of *Radio World*, I'd like to commend you on your many excellent articles. My only problem is reading the articles through the address label. Since I read each edition cover-to-cover I would gladly forego reading the index, which would make a nifty spot for the address label. Otherwise I have to find a phone booth, change clothes, remove the bifocals and answer lots of silly questions about my cape.

Clark Kent a/k/a Superman
d/b/a Bill Spitzer/CE
WLS Comm/Rapid City SD

RW Replies:

It's nice to know you're so interested in reading our articles! So, by popular demand, we have moved our address label down to the index area, and we think it looks better there too.

Wants Distortion Analyzer

Dear RW:

In response to "So You Want to be Chief Engineer".

I would like to disagree on a point in the December issue, that a distortion analyzer should not be on the initial list of test equipment. I contend that the distortion analyzer is one of the more important items to have. While the scope is vital for service work, cart alignment and general repair, the analyzer will show noise, hum, ground loops, RF, (detected AM) as well as many other problems, such as distortion, which will not show up on "most" scopes. While the more severe problems will be evident on a scope, when the signal levels are at mic level, or if the problem is say 40 dB below line level, you will have a difficult time finding the problem with most scopes. If you have a high sensitivity preamp on the scope, you solve one problem of using only a scope, but not the others.

I use a Potomac AT-51 audio test set AND a scope on all audio repairs. The unit accurately indicates all sorts of problems, including phase errors, and the damped meter is much easier to use than an X-Y presentation for phase alignment. I also use a sweep tape and an algebraic addition mode on my 2 trace scope for phase adjustment. If you have noise problems (such as that generated by the 50 kW of RF just outside our studios) you need a good analyzer to keep it well below –60 dBm so you have a clean signal.

Many audio problems are found on an analyzer, such as power supply hum, long before you can hear them on the (typical) cheap speakers, or before they show on a scope. We check our console outputs regularly on the analyzer to keep

(continued on page 14)

So You Want To B

by Bruce Mattson/CE
WWWW/Detroit

Detroit MI . . . In the first two segments we looked at what a Chief Engineer should do, what his responsibilities are, and some of the ways to make the job easier. We also discussed shop organization, spare parts and basically how to get organized. Now let's discuss "maintenance." Maintenance is one of the most important responsibilities of a Chief Engineer. The maintenance program of a station directly determines the amount of air time and the quality of sound. A poorly maintained station will have more down time and relatively poor sound while a station with a good maintenance program will have practically no down time and quality sound. This article could be called, "Maintenance, It's Your Responsibility".

Getting info

First let's find out where we can get the information on maintaining the equipment. In my first article, you learned that you have to read all the technical manuals of the station's equipment. The technical manuals usually have a maintenance section covering calibration of both mechanical and electronic equipment. This is where you find out what to do and when. The next question is, "Where do I start?" There are differences of opinion as to which end of the chain to start; the only guidance I can give is from my own experience. When you first inspected the station, you set priorities as to what needed to be done first, the audio or the RF side.

In my case the transmitter was a mess so I started there. Some engineers consider the transmitter to be the least important part of the audio chain, while in my belief it's the most important part. The audio consoles in stations today, even the old models, put out good sound. There is also a vast amount of processing equipment which will enhance the sound of even the poorest console. If the transmitter is not operating the way it should, though, nothing you do with audio processing will help your sound.

RadioWorld
VOL 5, NO. 1 JANUARY 1981

Program Line Equalization

by Harv Rees
Carl T. Jones Associates

Springfield, VA ... Equalized program lines have been in use since about 1928 and since then a lot of engineering work has been done to make improvements. Unfortunately in the last 20 years little real improvement has been seen and some well meaning "advances" have actually produced a step in the wrong direction.

In this two part article we will look at the advantages and disadvantages of these circuits, how they are engineered, and their characteristics. We will then pick apart existing telco equipment and finally make suggestions for improvements, both those the broadcaster can make and those telco should make.

What it's for

The purpose of an STL, either wire studio, ends at the nearest central office, and then is connected to another cable pair that runs toward the transmitter. There is much mystery and misconception relating to telco program circuits, but once the physical attributes are explained the broadcast engineer should be able to deal with installers in a more positive way.

At each end of the circuit, and at each end of the pairs at the central office, are "Protection Carbons." These are carbon blocks which contact both sides of the cable pair on one side and are grounded on the other. The purpose of these devices is to conduct lightning discharges to ground as the normally high resistance of carbon breaks down under a voltage spike. Unfortunately as time goes by, the carbon takes on moisture and is not only noisy but causes an imbalance to ground generating 60 Hz hum. I recommend removin

be a possibility, depending.) If you are unfortunate enough to have an amplifier in the central office you do not have the control over the circuit that you would have if the loop went straight through.

Equalized facilities

These are the services offered when available and are commonly known as the 6000 series.

6001 E service, bare pair, no guarantees
6002 D service, as above to 1500 Hz
6003 C service, as above to 2700 Hz
6004 B, 100-5 kHz, Temp
6005 A, 100-5 kHz, Perm

feeding a loop, but the rules of diminishing returns come into play when the source is not inductive, and the circuit current is high with respect to voltage. This relationship can be shown mathematically, but suffice it to say that the 4:1 "repeat coil" is the best answer.

Now with one at each end an equalizer is applied. This equalizer is basically a parallel resonant circuit and an adjustable series resistor. The resonant frequency is slightly higher in frequency than the bandwidth used. An 8 kHz circuit would utilize a resonant frequency of about 9 or 10 kHz. A 15 kHz circuit would require a reson

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More Reader's Forum

(continued from page 4)

track of these types of problems, if we show an increase in the noise floor, or a specific problem shows up, we quickly trace it to the source equipment for repair. On most scopes you would have a difficult time telling if the hum was coming from the equipment or the scope, or if the hum was above or below your established studio noise floor.

If the station is on a small budget (one station I worked at had an engineering budget 25% of the GM's car gas budget) then probably the scope (if any) is meager at best. If you can't afford a top notch Potomac test set, Heathkit does make an analyzer and audio generator which will suffice even for proof measurements for only a few hundred bucks. It's just not as convenient to use, especially for stereo measurements.

I do not find the frequency counter that necessary since the scope (if accurate) can be used for the same job, and with greater ease. Most cheap counters have a very limited input amplitude range, and can't differentiate between two signals, while the scope has a wide input range unit and you can visually separate two signals, or trigger on one, or if all else fails, tune a generator for zero beat or harmonic relationship. If I had to choose between a better scope and a cheap scope and a freq counter, I'd take the better scope.

A second problem, not mentioned in the article, is the problem at most small stations, the lack of tools. Either they have "kitchen" tools, no tools, or what tools they have are broken. An assortment of hand tools, dykes, long nose, nut drivers, allen wrenches, strippers, battery powered iron, etc, as well as some heavy iron in the form of a drill, vise, hacksaw, hammer, and assorted hardware items (screws, nails) are essential.

If parts are a problem, there are several parts houses such as Genises Electronics (Indianapolis) which carry a 2nd line of generic parts which typically sell for 1-3 cents per resistor, etc. I've found that the 1/4 watt flameproof resistors at 2 cents each are just as good in most circuits (often less noisy) than regular 12 cent, 1/2 watt.

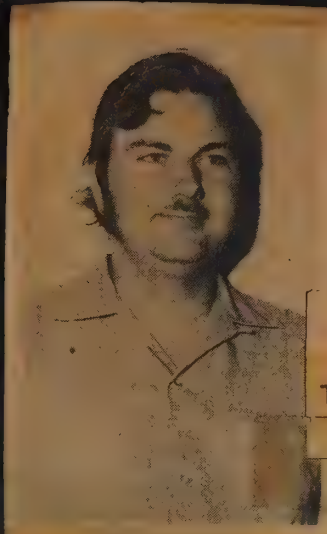
If you care about how good your signa is, you care about how good your tes equipment is. A good analyzer, one tha you can trust, with a good generator and scope, can do 99% of your service work. Most of your voltage measurements can be made with the scope also, so you really only need an ohmmeter, and possibly an ammeter, so buy a $50 imported 50 Kohm/volt VOM. If you have digital circuits, you'll need a digital DVM anyway, so have one kick-around VOM and one good digital VOM, such as the NLS units. You can easily build your own digital probe and strobe if you really need them for about $20.

Keep up the good work.

Henry Ruh/CE
WJJJ-WJEZ/Chicago IL

RW Replies:

You're points are well taken, so we won't disagree.



THE SOUTH LYON HERALD
Thursday, August 3, 1972

•*Northfield*

HENRY RUH

An all-A graduate of DeVry Technical School in Chicago, Ruh has worked for a living since high school. He completed a two year course of study in electronics in four months, and has attended EMU on a part time basis. He is presently employed by NET TV Inc. of Ann Arbor as engineer and has worked there for the past four years. He has held previous positions as chief engineer, assistant chief engineer, and assistant station manager for radio and television stations in Chicago and Detroit. At age 21 Ruh was chief engineer of a Chicago radio station, and has also been an announcer. Ruh is married, 25, and owns his own home in Whitmore Lake.

The people are frustrated and disgusted that taxes keep going up, the bulk of which go to county government, but what the township does get hasn't been put to best advantage. The Whitmore Lake water level problem was passed around until now the residents pay to pump polluted water from Horseshoe Lake into Whitmore Lake. Businesses and homes cannot easily get a building permit without connecting with the sewer, which the township won't extend beyond the Convalescent Center on Main Street, and roads are in such terrible condition that most people can't remember when Main Street was smooth enough to drive on. I feel that the most important action must be the voting in of the Fire Department millage, since the equipment should have been replaced 15 years ago, and the firehall is too small to hold additional equipment. The steps to lower taxes, cleaner lakes, better roads, etc. start with inviting business and industry to locate in areas best suited for the purpose.

Northfield Township Supervisor:

Four candidates, none incumbent, offer voters a choice for Republican standard-bearer to oppose Democratic candidate Neil Podewils in November.

Of these, neither Harold Gregg nor Louis Fielek appears to have the necessary qualifications to serve in this important position. Fielek's response to The Herald questionnaire reflects a lack of knowledge of the operations of the supervisor's office, while Gregg appears embittered by his personal experiences with current officeholders.

We find both the remaining candidates, Gordon Larson and Henry Ruh, well-qualified for the post.

Larson offers a wealth of background in both state and local governmental positions. He was an important force behind Northfield's reorganization from a zoning board to a planning commission and stayed on to guide this commission in its early efforts.

Ruh is a young man and a relative newcomer to the township. But he is also well versed in the problems facing Northfield and offers several objective answers. His youth and inexperience may prove detrimental, but should he remain in the township many years, he could prove to be a capable leader in local government.

Our leaning at this time is to Larson's experience and political knowledge.

mote

stayed at his mother's cottage at East Tawas.

The Coast Guard Festival Open House at the North Ottawa Rod and Gun Club at Grand Haven was attended by the Vane Chenoweths of Rusthton Road.

Bar Harbor, Maine, the New England States and Canada provided a pleasant countywide traffic law enforcement program which will be launched in Oakland County in September. Oakland County was selected two years ago by the National Highway Traffic Safety Administration as one of two sites in the nation in which a comprehensive national traffic safety demonstration program would be conducted. Over a year of study of traffic

Brighton Sidev

Plan Ch

It should be one of the most unusual Sidewalk Days in the history of Brighton, Ed Parrish, Chairman of the event for the downtown merchants, said this week.

Stores will be open from 9 a.m. to 9 p.m. on Friday,

n

Election coverage continues in this issue with editorials supporting candidates, biographies and statements from township office-seekers and capsule sketches of county candidates, as well as an in-depth

Tank

Thursday, August 3, 1972

DVERTISEMENT FOR BIDS South Lyon ommunity Schools

and 18 received on July 5, 1972, have been the Board of Education. New Sealed ll be received by the Board of Education of Community Schools, South Lyon, Michigan, Trades (Proposal No. 7) and Carpet Trades sal No. 18), for Construction of Addition to Elementary School and Addition to New ientary School.

Due Date,
Time and Place

e received until 2:00 p.m. EST, August 14, ffice of the Board of Education, South Lyon, which time and place all proposals will be l aloud.

Architects
arles W. Sherman Associates, Inc.
838 West Long Lake Road
Bloomfield Hills, Michigan 48013

Bidding Documents

cuments will be available, on or after August e office of the Architects upon deposits of h set of plans and specifications obtained. A two sets will be given to Bidders on deposit. cuments may be examined at the following e Office of the Architect

Scope of Proposals

roposals will be received for the following

o. 7
ades Work

Talkback

FOLKS:

I was happy to see (at last) an in-depth article on ITFS [April issue] after so many years of neglect.

One of the main criticisms of television has been that the viewer is totally passive. This has been a fact of the nature of the beast — it's like complaining that people have two feet and two hands!

Since the limitation is on the number of transmission or origination points for most television systems, it has been a natural outgrowth that there are more viewers than televisors, just as there are generally more people in an audience than players on the stage. An interactive system must have allowances for two-way transmission, which present telecommunications systems do not allow — until now.

The amateur radio fraternity has for the last four years enjoyed a community system (and for some 35 years, a private system) which allows each individual to transmit his/her image and sound to the entire group. Two-way television, highly touted for cable systems, has been a hobby and area of exploration for the hams for many years. Recent technological advances have made it possible for the TB signal to be retransmitted from a central location, repeated, which allows persons over a wide geographic area to communicate with each other easily. The stations take turns transmitting while each can see all of the other transmissions. The inclusion of inexpensive filters (less than $100 allows the use of full duplex (watch-while-transmitting) so that others may interject comments or change the direction of the conversation as naturally as we do in real live, face-to-face situations.

The use of ITFS for interactive, personal communication has been proposed by one amateur radio group through the person of Ed Piller of New York. His group, the Long Island Mobile Radio Club, proposes community TV repeaters, such as we hams have enjoyed and developed, that would allow the viewer to do more than just sit and stare at the screen. The viewer would now be actively engaged in an activity which should intensify the learning experience.

Just as classroom interaction makes the learning situation richer than just reading the book or watching the lecture on TV, the two-way television system involves the student in the learning process. This should increase student attention, interest, and the quantum of material learned.

Accordingly, the cries of Ms. Marie Winn in *The Plug-in Drug* [April editorial], while serious, are nonetheless not pointing to the problem but to the symptoms of TVitis. While we may be raising a nation of vidiots (video idiots), we do have the means at hand to do more with the infant medium of television than we are currently doing. The growth and utilization of ITFS or a similar system, as proposed by Mr. Piller, would go a long way toward increasing the viewers (our) benefits from television.

Unfortunately, many school systems, such as the one local to my home area, have no interest in "educational" television. Our local school board has resisted all attempts to involve them in any over-the-air educational system from our non-commercial TV station or from a more costly ITFS system. Their objections range from "too expensive" to "ineffective". Let's hope that more progressive and aware school systems will utilize the tool at hand in a more aggressive and enlightened posture.

(*signed*)

HENRY B. RUH

Publisher
Amateur TV Magazine
Bloomington, Indiana


"THESE NEW 3M D.A.'S WILL BRING OUR SYSTEM PULSES... AND HARRY'S...BACK TO NORMAL!"

Several times a week Ruth Phillips goes down to the basement of her suburban Accokeek, Maryland, home, flicks the switch of a small television camera, activates the transmitter to which it's attached and emerges on the TV screens in homes in Baltimore. Mrs. Phillips is one of 3,000 amateur television enthusiasts in the United States (there are 6,000 worldwide) who regularly beam images and words from their home studios to converted TV sets up to 60 miles away.

Although the technology has been around for 40 years and pioneers have long been transmitting to other buffs within a radius of three or four miles, amateur television—ATV as its followers call it—caught on only recently. The impetus came from a ruling by the Federal Communications Commission two years ago, which gave licensed amateurs permission to construct repeaters.

Repeaters take the weak signals sent out from home transmitters and rebroadcast them on a lower and stronger frequency. There are repeaters in Washington, D.C.; Baltimore, Maryland; Hartford and Somers, Connecticut; Boston, Massachusetts; and Plainview, New York. Other installations are planned for sites in the Midwest and California.

Basically, what the ATV enthusiast does is duplicate on a smaller scale the facilities of a television station, using inexpensive surplus components. The basement studio put together by Mrs. Phillips and her husband, David, is typical: A TV camera dominates a room banked with floodlights and fluorescent lights. The camera is hooked up to a battery-powered transmitter, which is connected by cable to a 100-foot antenna on the roof. It sends the images and words to a repeater on top of an apartment building in Alexandria, Virginia. These are relayed to TV sets that have been modified to receive the Ultra High Frequency signals.

The Phillipses' studio cost under $1,000. Other enthusiasts, according to TV ham Ed Piller of Syosset, New York, have built simple systems for as little as $200 by using such castoffs as two-way taxi-cab radios, old tube radios and surveillance cameras.

What do these amateurs broadcast? Ruth and David Phillips and their three sons simply "visit" with 25 other families in the area, sharing Boy Scout experiences, Christmas trees and pets. "These days, ATV is a great energy saver. You don't have to use gas to see people," says Mrs. Phillips.

Elsewhere, says Henry Ruh, editor and publisher of *Amateur Television Magazine*, ATV hams have made other contributions to their communities. For example, in Tulsa, Oklahoma, a ham keeps a live TV watch on storms, transmitting information directly to the National Weather Service. In Los Angeles, hams help control traffic from a helicopter.

Mr. Piller and his Long Island colleagues regard ATV as a potent educational force that could transmit technical data among hams and link schools to other learning centers in the community. The Washington, D.C., group, Metrovision, has gone in heavily for coverage of local special events, using a mobile unit to bring its members "in person" to such things as the Navy's 200th birthday party and several Bicentennial celebrations.

For more information about ATV, write HENRY RUH, P.O. BOX 1347, BLOOMINGTON, IND. 47401. —BARBARA DELATINER

McCALLS MAY 1977 (65)

6 54

Auction AD

Weather — sarcastum

Concentration

+ FR. Language
L game show - Boc

+ Emergency

+ [illegible] - 12

+ Ball game

8000 — Jewelery ad = Syracuse, NY
police woman

An AMSAT Satellite Report Exclusive:

Radio Sputnik's Alive in Orbit!!!

In a space spectacular unique in all the history of Amateur Radio, the Amateurs of the Soviet Union took a giant step with the simultaneous launch 17 Dec. of six new Sputniks. At this writing the Amateur world was abuzz with talk of the space achievement and how it will affect the Amateur Community in general and the Amateur Satellite Community in particular.

The TASS (Soviet) News Agency reported the launch as follows:

Moscow, 18 Dec. (TASS)—Artificial Earth Satellites, Radio-3, Radio-4, Radio-5, Radio-6, Radio-7 and Radio-8 were launched in the Soviet Union on December 17. All the six satellites were orbited by one carrier rocket.

The satellites have on board apparatus for communication betwen radio hams and a radio telemetric system for transmitting back to earth data on the work of the on board apparatus.

All the six satellites are following orbits close to the calculated ones. Their initial parameters are: The Period of Revolution-120.9 min; Maximum Distance from the Earth (Apogee)-1794 kilometres; Minimum Distance from the Earth (Perigee)-1685 kilometres; The Orbit's Inclination-83 degrees.

The apparatus aboard the satellites is functioning normally. Sessions of communications via the satellites will be held according to program. Data needed for organizing communication between amateur radio operators will be published in the press.

Ground receiving and command centres control the work of the satellites as well as receive and process the incoming information.

The International Registration Index of the "Radio" satellites is RS.

The satellites Radio-3, Radio-4, Radio-5, Radio-6, Radio-7, Radio-8, and the ground receiving and command centres were created by organizations of radio hams of the USSR who dedicate the launching of these satellites to the 40th anniversary of the victory of Soviet troops near Moscow.

This edition of *ASR* will be largely devoted to the new RS's. Some of the information is very recent and remains unconfirmed. On the other hand, much of the early information has since been confirmed either by reliable observers or the Russian Program manager himself, UA3CR.

Word of the launch spread quickly the morning of Thursday, 17 Dec. with many Amateurs having been alerted to watch for the launch around the mid-week period. Thus, when the call arrived at *ASR* offices early Thursday, K1HTV's exclamation was not totally unanticipated. "They're up!" he exclaimed with unmistakable enthusiasm. Special AMSAT Nets were held on 3850 kHz for the rest of the week to help spread the word.

With this edition of *ASR* we note the closing of the calendar year, the 20th anniversary of OSCAR 1's launch and a spectacular achievement in amateur space technology. What a way to close out the year!!

Transponder and Autoresponder Frequencies

At this writing the frequencies of operation of most of the modules aboard the six new Russian satellites were becoming known. Moreover, there are six complete transponders and three autoresponders (robots) in orbit. RS-3, 5 and 7 each have a transponder and autoresponder while RS-4, 6 and 8 have only the transponders. The following frequencies are the best available at press time:

Sat #	Uplink Freq.	Downlink Freq.	Beacons
RS-3	145.820- .900	29.360-.400	29.321, .401
RS-4	145.860- .900	29.360-.400	29.360, .403
RS-5	145.910- .950	29.410-.450	29.331, .452
RS-6	145.910- .950	29.410-.450	29.411, .453
RS-7	145.960-6.000	29.460-.500	29.341, .501
RS-8	145.960-6.000	29.460-.500	29.461, .502

Autoresponders:

Sat #	Uplink Freq.	Downlink Freq.
RS-3	145.820	29.320
RS-5	145.826	29.331
RS-7	145.835	29.341

Robot Access Procedures Told

Although the story authored by G3IOR in the June/July 1980 *ORBIT* has been an enormous help in coming to understand the nature of the new RS's, some updates are needed. For example the format for accessing the robots on RS-3, 5 and 7 is different in a small but critical way. The procedure for accessing is exemplified as follows assuming your callsign is G3IOR and you wish to access RS-5.

First you must listen for RS-5 to call CQ on its robot beacon frequency of 29.331 MHz. When you hear it, tune your 2-meter transmitter to about 145.830 and send a series of dots. When you hear your dots being regenerated from the downlink of RS-5, you'll know you are within the capture range of the robot receiver. Then begin you call as follows:

"RS5 de G3IOR AR"

If successful the RS-5 robot should respond as indicated below. Try to send clean cw at about the same speed you hear the robot. Apparently you need not be too accurate because the robot will adapt to your speed after a short training period. K1HTV reports the robot can slew from about 10 wpm to about 20 or 25 wpm. If the robot did not get your call clearly you may hear a "QRZ" or "QRM" or a "RPT". In this case you should simply try again. If you hear a "QRQ" the robot wants you to send faster. Conversely, a "QRS" would require you to slow down a bit. It appears the robot(s) are moderately liberal in the cw proficiency it will accept. When you are successful you will hear the following from, say, RS-5:

"G3IOR de RS5 QSO nr xyz G3IOR de RS5 QSO nr xyz OP ROBOT T U FR QSO 73 SK"

The letters "xyz" represent a three digit QSO serial number that will be incremented once for each QSO yielding a unique QSO number for each QSO up to 999.

The transponder access is standard and anyone having worked Mode A in the past will have no problem here with the new RS birds. Be wary at all times of your uplink power as the new RS receivers are very sensitive and need only perhaps 20 or 30 watts ERP for an excellent downlink signal to result. That power level of 30 watts ERP applies to the receivers when the on-board attenuatorsare NOT activated as indicated by telemetry channel MW or WW. (See telemetry information in another article in this *ASR*).

Greg Roberts, ZS1BI, reports that the robots will be calling CQ about once in 59 seconds when active and that should be your clue to participate.

Your reports of activities to *ASR* will be appreciated and the best ones will be published as space allows.

New Birds Have Same Orbits as RS-1/2

The new Radio Sputniks have orbits very similar to those of the first two RS's which were launched in October, 1978. In rough terms, the orbits are described as follows:

The orbits are circular, polar, pro-grade (inclination less than 90 degrees). The altitude is roughly 1658 km (1030 statute miles). The orbit is one most often associated with an earth resources mission. The precise numbers are as follows:

Sat. #	Apogee (km)	Perigee (km)	Period (min)	Incr.(deg w/orb)	Incl. (deg)
RS-3	1688.0	1577.4	118.52025	29.75679	82.9592
RS-4	1691.5	1640.5	119.39679	29.97606	82.9603
RS-5	1689.9	1653.2	119.55572	30.01583	82.9629
RS-6	1690.9	1592.5	118.71899	29.80655	82.9542
RS-7	1688.9	1634.2	119.19576	29.92619	82.9629
RS-8	1693.4	1657.1	119.76628	30.06853	82.9570

Those using the W3IWI program will want to use the Keplerian elements shown in Table 1 for that program. Please note that these data are fairly early and so should be updated with more recent data when available.

The reference numbers for the new RS's are as follows:

Satellite Designation	NASA Object #	International Catalog #
RS-3	81-120A	12997
RS-4	81-120D	13000
RS-5	81-120C	12999
RS-6	81-120F	13002
RS-7	81-120E	13001
RS-8	81-120B	12998

Use the catalog numbers to request satellite tracking data from official government agencies.

Reference orbits for 28 Dec. 81 are as follows (please do your own extrapolation to useable dates based on the data given above):

Satellite Designation	Time of EQX	Longitude of EQX
RS-3	01:23:30	204.0
RS-4	01:16:24	202.1
RS-5	01:36:36	207.2
RS-6	01:48:58	210.4
RS-7	00:50:58	195.8
RS-8	00:04:00	183.8

Individuals using manual locators such as the Satellabe and OSCARlocator will find that the range circles of OSCAR 7 will provide usable accuracy and that the ground track of RS-1, if available, will be very accurate. W9KDR and W9MXC report that a suitable overlay set for use with the new RS birds will be found in a future Mode J Club Newsletter. The scale will be set so as to be useable with the new ARRL locator package which is available from AMSAT Headquarters for $7 plus $1 postage/handling. Write: AMSAT, P.O. Box 27, Washington, D.C. 20044.

RS Telemetry Decoded

The first indications of the existance of the new RS satellites in the West was the appearance in *ORBIT* June/July 1980 of G3IOR's article (pgs. 17-19). Because of the importance of the Tables included in that article, it is

Editor's Note: Last minute late-breaking information reports that an article in *Sovieteskiy Patriot* dated December 27, 1981, describes the new Russian Satellites. According to the article, RS3 and RS4 have neither robots or transponders aboard, just beacons.

Table I

	RS-3	RS-4	RS-5	RS-6	RS-7	RS-8
Ref. Epoch	81-352.42821526	81-352.51786506	81-352.43615239	81-352.51220885	81-352.51617870	81-352.43778284
Der. Mean Motion	4E-8	4E-8	4E-8	4E-8	4E-8	4E-8
Inclin.	82.9592	82.9603	82.9629	82.9542	82.9629	82.9570
RAAN	278.6247	278.6053	278.6468	278.5724	278.5657	278.6150
Eccen.	0.0059909	0.0018414	0.0008995	0.0051758	0.0022846	0.0017913
Arg. of Perigee	95.7099	143.1071	170.9112	107.1050	109.0146	147.6395
Mean Anomaly	265.0726	217.1104	189.1955	253.5810	251.3076	212.3476
Mean Motion	12.15563035	12.06632531	12.05025077	12.13529253	12.08658540	12.02909195
Element set	10	6	5	5	6	5
Rev. #of Ref. Epoch	12	13	12	13	13	12

reprinted in part below. Though some minor factors have changed, the majority of the information appears to remain valid with regard to RS-3 through 8.

There are in fact, thirty-five parameters in all, despite the seven letter prefixes, the others of which can be identified with an additional 'dit' in front of K, D, O, etc. making them sound like different letters. 'D' would sound like 'L', 'O' like 'J' and so on. See Tables II and III. The actual format can be the same, depending on whether the service channel is on or not, thus no prefix, a straight K, D, O, G, U, S, W sequence would indicate things are quiet apart from the beacon, while 'EK', 'ED', 'EO' etc., would be sent when all is going.

Thus, with activity, prefix goes to 'E' prefix, the 'I' pre-prefix can go to 'S', e.g. 'IK' to 'SK', 'ED' to 'SD', etc., the normal non-active 'N' prefix to 'R', the normal 'A' to 'U', and the normal 'M' to 'W', all by the extra 'dit' of information. For the second channel, some of the information such as the output power of the transponder and the means of calculation are the same, but other interpretations are now employed. See Table III.

The transponder, like the previous, being designed with the USSR two-meter five-watt power limitation in mind, shows superb sensitivity, and was producing good signals from OSCAR-7 on Mode-B downlink to its output on ten-meters, with its 145.910-950 MHz input to give 29.410-450 MHz output. A further innovation is a codestore system with a capacity of one hundred characters, which has been used to give out messages about the transponder, on 29.330 MHz e.g. "CQ . . . . Transponder RSØ is testing Rx 145.910/950 MHz Tx 29.410/450 MHz Pse QSL via Moscow Box 88 RS3A."

The TLM can dwell on any one channel continuously, in which case, the "RSØ" normally finalizing each run of telemetry is negated. The transmitters can also be placed into two different power levels, indicated by the 'MG' and 'MU' prefixes. The testing of the units will be from 1200 to 1230 each Saturday, Moscow time. Reports are appreciated, written, or on frequency 29.445 or 330 via F2 when the band is open.

Perhaps the most exciting feature of all is the autoresponder that has been successfully tested to me by demonstration. When it is called on 145.830 MHz it will respond on 29.330 MHz and actually conduct a contact with the station whose call it identifies. It will call CQ on 29.330, and the station needing a QSO should call "RSØA de (your call) AR." The response will come back: "(Your call) de RSØ QSO Nr 001 (your call) de RSØ QSO Nr 001 OP ROBOT T U FR QSO 73 SK" and then await the next caller. It will presumeably be assigend "RS-3" or the like once in orbit, and serialize the QSO number.

Table II - RS Satellite First Channel

Letter	Content	Calculation
K	Output power	$0.2 \times N^2$ = op in mW of transponder
D	Voltage of source	n x 0.2 = power source in volts
O	Charge current	20 x (100 − n) = charge in mA
G	Believed to be TLM calibration constant test level	
U	Not given	
S	Temp. Regulator	T = n = Temp. of Voltage Regulator in C
W	Temp. 10m TX cooling fins	T = n = Temp. of 10-meter output stage in C

Table III - RS Satellite Other Channels

Second Channel: Prefix, 'I' or (active) 'S', eg. 'IK' or 'SK', 'ID' or 'SD' etc.

Letter	Content	Calculation
K	Output pwr transp.	As previous
D	Zero adj. of TLM	Figure given
O	Beacon output pwr	$0.2 \times N^2$ = Beacon output in mW
G	Sensitivity transp.	N = −dB (regulated)
U	'S' meter 1st RX	0.1 x (N − 10) = 'S' units
S	'S' meter ROBOT RX	as above
W	'S' meter 2nd service RX	as above

Third Channel: Prefix 'N' (quiet) or 'R' (active) eg. 'NK' or 'RK' etc.

K	As previous two 'K' channels
D-W	Regret no further information yet to hand

Continued on next page.

Continued from previous page.

Fourth Channel: Prefix 'A' (inactive) or 'U' (active)
e.g. 'AK' or 'RK' etc.

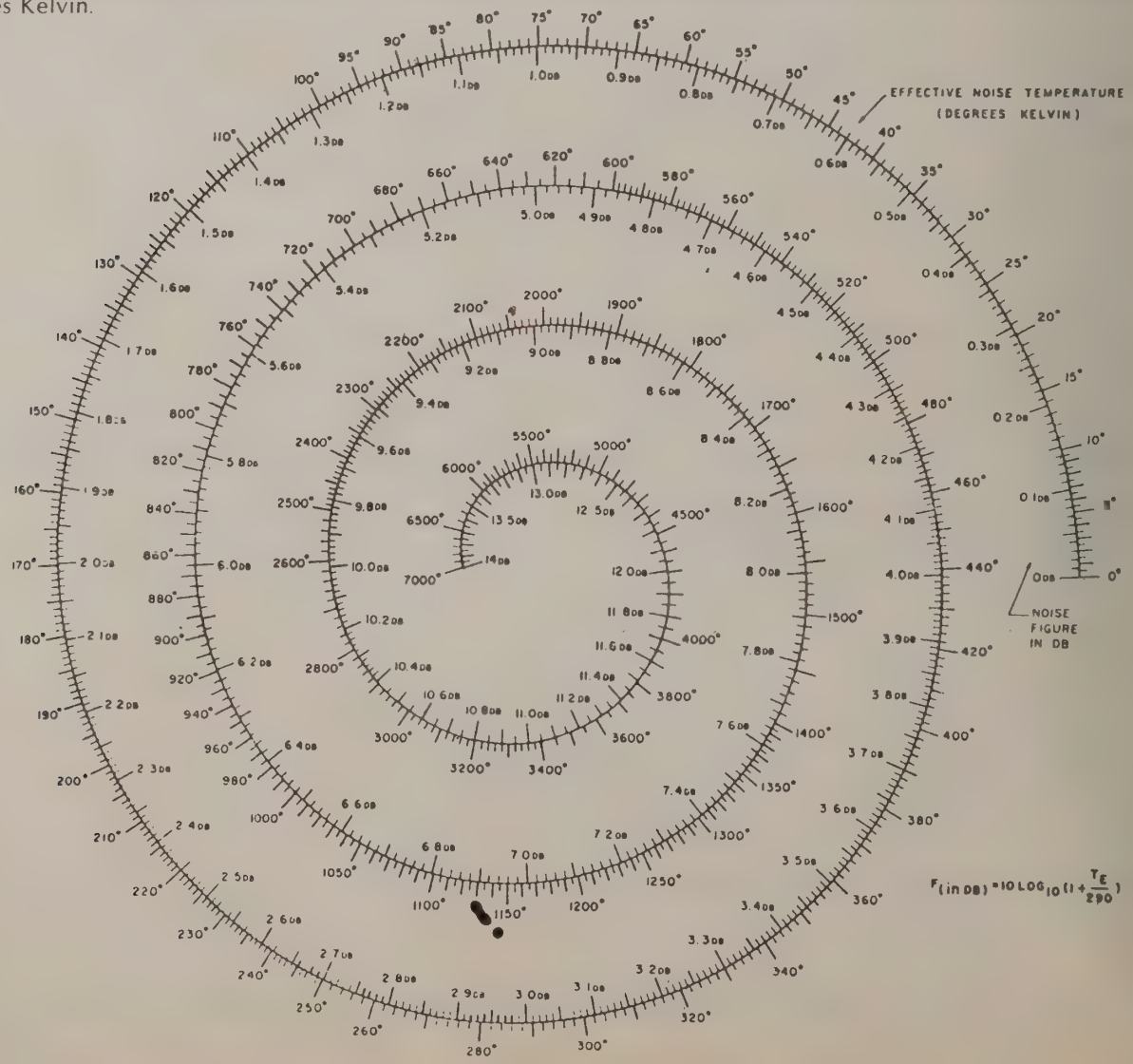
K	Output power of transponder	as previous
D	9V transponder line	0.1 x N = transponder supply 'V' in volts
O	7.5V transponder line	as above
G	9V 1st stabilizer	as above
U	7.5V 1st stabilizer	as above
S	9V 2nd stabilizer	as above
W	7.5V 2nd stabilizer	as above

Fifth Channel: Prefix 'M' (inactive) or 'W' (active)
e.g. 'MK' or 'WK' etc.

K	Output power of transponder	as previous
D	On board log	N = no. of QSO's ±1 (assumed on ROBOT)
O	Heater radiation control	N x 0.1 = watts, power of heating system
G	ROBOT input power	n x 20 = power in mW
U	Power of service channel	n x 20 = nW (assumed to be transponder Wt)
S	Sensitivity pad of ROBOT	N = −dB of ROBOT RX
W	Sensitivity of service RX	N = −dB

An ASR Technical Note: *Noise Figure vs. Noise Temperature.*

Ever wonder what the conversion was between the two? The conversion plot below presents the conversion either way. For those needing an exact solution, the equation shown provides noise figure in dB given the noise temperature in degrees Kelvin.



Jolly Roger "playing radio", excuses "BS"

Dear Real Times:

This is in comment to a recent article concerning the pirate radio station operation called Jolly Roger. To comment on each of the points concerning their operation would be too lengthy for a reply in your publication. Suffice it to say that the operators of the illegal operation are apparently deluded by incorrect information poor perspective and misguided thought.

First, the FCC does not *give* anyone a frequency. There are at least four *non-commercial* radio frequencies available to Bloomington, two to Bedford and one to Ellettsville which, if the group Jolly Roger were serious about Community Radio, could operate upon proper application and license. This information is available to anyone who is willing to do the work to find it, or hire a consultant to find it for them.

Second, a non-commercial operation (since Jolly Roger states they do not like commercial radio) is neither expensive, nor requires three Washington lawyers. The process involves selecting the proper frequency, preparing an application with its various exhibits as required of all FCC licensees, and a wait which is currently about nine months for the processing. If in the judgement of the Commission, Jolly Roger as manifest by its application would operate in the public interest, and meet the other minimal qualifications a license would be issued.

However, Jolly Roger choose to bypass this method and its built in safeguards and protections (protection to the public from interference caused by, among other things, illegal operations). Even today, you can get on the air with a low power FM non-commercial station for about $2000. You do not need an expensive Washington lawyer or engineering consultant as there are several individuals and organizations which specialize in low power and low cost applications, among which is the NFCB (National Federation of Community Broadcasters) which is based in Washington and provides assistance, information, programming and legal help to non-commercial stations.

Third, the FCC does not exist to protect the public interest on the airwaves as stated in the article. The FCC protects the public by screening applicants to insure that, among other things, the proposed operation is not in conflict with existing stations so as not to cause interference to listeners of the other stations; to ascertain with some degree of reasonableness that the proposed operation is financially capable of sustaining the operation (what good is a station which cannot stay on the air?); that the programming will perform a public benefit and conform to minimum standards of non-entertainment programming service such as news, public affairs, religion, public access for editorial and controversial issue discussion, and generally serves the unique needs of the community of the license.

Jolly Roger chose not to follow this route either and thus, despite the high sounding language was not serving a public interest but their own private interests to play radio.

Lastly, there have been applications accepted with estimated construction costs of less than $100 and operating costs of less than $100 per year. How such an operation could afford to produce quality programming is beyond my comprehension, but such an application was granted a license.

So, while it is true that commercial operations cost $100,000 and up to start, a legal non-commercial station can get away with much less. If the spirited youth of Bloomington were really interested in a committment to the public, then I suggest that the free form followers of WQAX cable radio, and the six year on-again-off-again willow in the wind Clear Creek Radio bunch and perhaps the structured but open WIUS campus-limited radio operations would get off their butts and actually apply to build a real radio station licensed to serve the public on one of the seven possible area frequencies. As far as I am concerned, the excuses made in the article are pure BS.

Henry B. Ruh
Publisher *Amateur Television magazine*

A letter to the readers

Real Times' next issue will feature a Valentine story. You may be the author of that story. Your submission may be fact or fiction and you can be either a published author or an unknown. Send your Valentine tales to *Real Times,* PO Box 1686, Bloomington, IN 47401. Winner(s) will be published in the next issue.

Real Times is interested in talking to people who would like to write about the following subjects: television, fine arts, local music, and local people. If you are one of these people, contact us at 332-0011.

We are also interested in talking to photographers who would like to get published. Contact us at the above number.

RT 36

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Double Fantasy musically rich

By STEVE PECK

The ironic and sad twist of John Lennon's death has shed some public attention on his and Yoko Ono's comeback album, *Double Fantasy*. When an idol passes such as Lennon or Elvis Presley, fans almost automatically reach out for somme form of memorabilia that gives them a feeling that they now own part of the deceased legend. In this time of mourning, many people are doing just that with *Double Fantasy*. Unfortunately, to these people it is just a souvenier instead of an album rich in music which possesses a very relevant message to us in the early 1980's.

For the ones who love Lennon's music and really take it to heart, they have hit upon this album for it's face value. It is another chapter in what was an ongoing saga of a man who strived hard to come to terms with himself, and what was going on around him. *Double Fantasy* is a tale told by a man and his wife that opens to us their love, concerns and cares in their present situation. For a person familiar with Lennon's work as a whole, especially his first solo albums, John's songs on this record come across as being very mild. One looking for Beatle John, or the outspoken pained Lennon of those early albums, will not find him here. What is found is a man who dearly loved his wife and son, who finally after five years seclusion decided to bring these simple domestic emotions and situations to the public. After everything John Lennon went through, it is a blessing that he was able to spend the final years of his life in peace doing what he wanted to do.

Musically, *Double Fantasy* shifts back and forth from John to Yoko. The sequencing of the songs is very important as they seem to call and answer each other from cut to cut. There is not much musical collaboration between the two, but the spirit of each other pervades every song. John's tunes break no real new ground, but Yoko's are very diverse and innovative. Once Yoko Ono was considered a bad joke that was an embarrasment to Lennon with her shrieks and guttural noises. On *Double Fantasy* she has reached an artistic peak built on her earlier work. The new wave connotations of several of her songs emphasize how much singers such as Lene Lovich and Nina Hagen have learned from her.

As for the songs on *Double Fantasy,* John's "(Just Like) Starting Over" opens the album with a fun rock'n'roll feel that is akin to one of John's major influences: Elvis Presley. The jubilant message of starting fresh in 1980 is now ironically very sad. "Kiss Kiss Kiss" is an uptempo Yoko tune that by the end harkens back to her days of impoverished vocal sounds. "Cleanup Time" is John's rockingest number powered by the forceful guitar licks of Earl Slick as Lennon explains his recent house-husbandry. Yoko's "Give Me Something" is a short demanding tune that is definitely new wave. "I'm Losing You" is John's one excursion into the pained, bluesy type of song that was once his trademark. Yoko answers him with "I'm Moving On" which is very similar to its predecessor. "Beautiful Boy" is a heartfelt lullaby that Papa John sings to his little boy, Sean.

Side two commences with "Watching the Wheels", John's explanation about why he took a long break from the music business and the public eye. "I'm Your Angel" is a tune styled in the forties tradition with Yoko playfully romanticizing to her husband. "Woman" is a song that could have fit on any of the early Beatles albums with John dedicating his love to his wife and women in general. Yoko's "Beautiful Boys" is a haunting ballad to the boy and man so close in her life. "Dear Yoko" is a funny little tune where John is telling his wife how much he misses her when she is away. The album ends with two more excellent Yoko Ono songs "Every Man Needs a Woman to Love," and the now-ironic "Hard Times Are Over."

The musicianship and production on *Double Fantasy* are undeniably superb. John & Yoko have never reached this point of perfection on their own before. Earl Slick is dynamite on guitar, while Tony Levin offers us some of the most tasteful bass playing this side of anybody. Jack Douglas' major overview in production is precise but generous. John makes great use of his famous personal voice, while Yoko is surprising in the fact that she really isn't annoying throughout the album.

Hopefully, the mass numbers of people that are buying this record will see through the event of John Lennon's death and get down to its substance. If anything, Lennon's death *should emphasize* the message of his love for a sound family situation, and the joys that can stem from it. Lennon was always known for his messages in the past, and what he gave us at the end of his life should be an inspiration for all who are unsure of what the eighties will bring.

Romantics boring

By E. CURTIS

Detroit's Romantics are avowed fans of what at one time was dubbed "The British Invasion" You know: the Beatles, the Animals, the Kinks, the Hollies. Nowhere is this more apparent than on *National Breakout,* their second LP on the Nemperor label. The compilation of 11 songs sadly though not surprisingly proves more imitative than emulative, more derivative than expansive. There are few new ideas here, musical or lyrical.

This is not to say that the music is unreminiscent of the Beatles and company because it certainly is; unfortunately it's just so unimaginatively done. Statements — both musical and lyrical — which long ago were cliches are vapidly recombined to yield a product which , like that of the worst of the Romantic poets, fails to rise above the confines of the genre and ultimately can only be called boring.

Panics "best"?

By E. CURTIS

There's really very little to say about the new Gulcher single "I Wanna Kill My Mom/Best Band; Tie Me Up, Baby!" The Panics have always called a spade a spade (which probably accounts for their widespread popularity) and if they claim to be the Best Band in Bloomington, then they must be. The defense rests.

Volume 3, Number 1 FREE January 21, 1981

REAL TIMES

The year in movies

The best, the worst and the rest

Reagan and Bloomington

How local groups are organizing

1980: The good, the bad and the mediocre

By MICHAEL BOURNE

In 1980 I attended or watched on TV around 580 movies. So, for me, 1980 was a good year for movies — at least to watch (on HBO and TBS) and to attend around Bloomington (The BFS, The Ryder Series, and all the movies at IU), if not always a good year at the theaters. I attended 125 new movies and 1980 was not a great year *at* the movies.

There were exceptions through the year. Richard Rush worked on *The Stunt Man* for nine years, turned away again and again by producers, then turned away by distributors. When the picture (from Paul Brodeur's novel of life and the illusions of the movies) was eventually produced and released, if not a masterpiece after all, *The Stunt Man* was nevertheless the triumph of an artist's will.

Other directors were not as fortunate (if that's the word). When the first reviews were violent, Michael Cimino's picture *Heaven's Gate* was pulled together after the first day's showing. Robert Altman's picture *Health,* a *Nashville*-like satire of medicine and politics, was considered too undependable at the box office and wasn't released at all. *Popeye,* the other picture Altman directed, was more of what Hollywood wants: entertaining and bankable and trivial.

Popeye was typical of Christmas 1980: if most of what was released through the year was trivial, the Christmas release was all trifles. Christmas at the movies was like eating fudge after a year of sundaes.

Hollywood wants the usual, not the unusual, and again in 1980 the usual was sex and wrecks. I don't know which picture wrecked more cars: *The Blues Brothers* or *Smokey and The Bandit II. The Blues Brothers* was at least enjoyable nonsense with some good R-and-B. *Smokey and The Bandet II* was witless, lifeless — and , I wish, celluloid-less.

There was more sex than wrecks in 1980. The Marriage-Go-Round was awhirl: breaking The Seventh Commandment was Man's (and Woman's) favorite sport in *The Last Married Couple, Serial, Middle Age Crazy, Loving Couples,* and *A Change of Seasons,* among others. The plots were often similar: a husband (suffering male menopause) falls for a younger woman, then the wife falls for a younger man. Sometimes it's the reverse, but it's all the better if Bo Derek is naked and wet in slow motion. Shirley MacLaine was the wife twice and considers these movies liberating visions of

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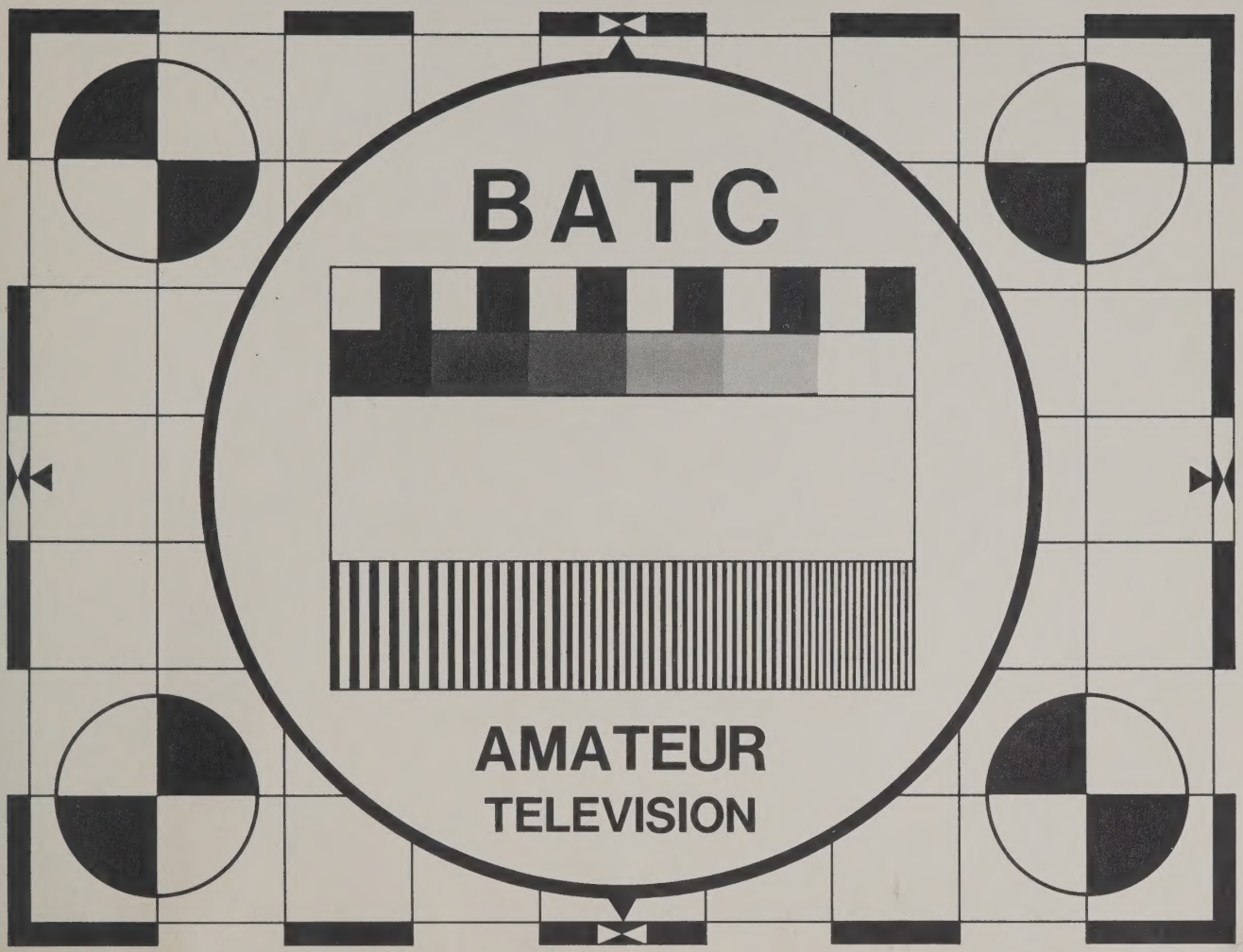
Richard Pryor in *Stir Crazy*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